NOVEMBER 1973, No. 11

FISHING INFORMATION

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

ATIONAL
MARINE
FISHERIES
SERVICE

UTHWEST
ISHERIES
CENTER
LA JOLLA,
ALIFORNIA

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES CENTER
8604 LA JOLLA SHORES DRIVE - P. O. BOX 271
LA JOLLA, CALIFORNIA 92037

FISHING INFORMATION

NOVEMBER 1973, No. 11

B. J. Rothschild, Director, SOUTHWEST FISHERIES CENTER
I. Barrett, Deputy Director
R. Shomura, Director, Honolulu Laboratory

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) a narrative description of subsurface temperature structure for parts of the North Pacific, 4) charts of winds and pressures for the eastern North Pacific, 5) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 6) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. This is a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

L.E. Eber, Leader
Fishery Information Systems
Southwest Fisheries Center
La Jolla, California

Submitted for publication - December 18, 1973

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L. Eber (Figures 4 and 6), F. Miller (Figures 9 and 10)
J. Renner (Figures 1, 2, 3, 5, 7, and 8), J.F.T. Saur (Figures 11, 12 and 13)

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National Weather Service, San Diego, California
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Pacific Environment Institute, Fisheries Research Board of Canada, West Vancouver, British Columbia, by L. F. Giovando from observations by S. G. Westhaver at Langara Island Light; D. L. Kupillas at Cape St. James Light; L. Collins at Kains Island Lightstation; O. A. Edwards at Amphitrite Point Light
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Expendable bathythermograph observations are made by the mates of the S. S. Hawaiian Enterprise of Matson Navigation Co., and processed with assistance from the NMFS Pacific Environmental Group, Monterey. The project was partially supported by National Science Foundation Grant AG-256 and the Office of Naval Research, Gov. Order NAonr-9-74.

Sea Surface Temperature and Environmental Conditions

L. EBER AND F. MILLER

Eastern North Pacific

Sea surface temperatures in the eastern north Pacific continued to fall in November 1973 as the peak of the cooling season approached. The cooling was irregular, however, and decreases in temperature from the preceding month were less than normal in the region west of 150°W, greater than normal in most of the region between 125° and 150°W, and less than normal in waters adjacent to the coast.

The pattern of anomalous temperature, which had been characterized by mostly negative departures from normal in October, showed weak positive departures in November to the west of 155°W (Figure 5). Negative departures predominated in the region east of 150°W with magnitudes of 2°F (1.1°C) or more in the Gulf of Alaska and along most of the North American coast.

Atmospheric pressures in November 1973 were higher than normal in the region north of latitude 40°N, between 140° and 180°W. The largest deviations occurred in the vicinity of the Alaska Peninsula and exceeded 12 millibars. Pressures were below normal by more than 4 millibars off Vancouver Island and the Washington coast (Figures 1 and 2). The resultant winds associated with this pressure distribution were relatively strong and from the northwest quadrant in the region 35°-50°N, between longitudes 125° and 145°W, where the most rapid cooling of surface waters occurred. On the other hand, southeasterly resultant winds prevailed over most of the region west of 155°W where seasonal decreases of surface water temperature were less than normal.

Western North Pacific

Sea surface temperatures cooled at less than the normal rate in most of the western Pacific north of 35°N. Temperatures which were 2°F (1.1°C) or more higher than the long-term mean occurred in the vicinity of 42°N between 165° and 180°E (Figure 6). Temperature conditions were mostly cooler than normal west of 175°E, between 30° and 35°N. South of 30°N, a slight shift toward relatively warmer conditions appears to have occurred since October, but the differences from normal conditions were slight.

Eastern Tropical Pacific

Sea surface temperatures in November 1973 (Figure 9) reflected only slight seasonal changes from October throughout the entire eastern Pacific between 30°N and 30°S. The distribution of anomalous temperature (Figure 10) was remarkably similar to that in October.

The thermal front extending from the South American coast westward, just north of the Galapagos Islands, continued to be the most significant temperature feature in the equatorial region. Cooling associated with upwelling has extended westward to 170°W over the past 2 months.

Steady southeast trade winds crossing the equator from the southern hemisphere west of 100°W has been an important factor in maintaining the upwelling of cold water in the Peru Current and along the equator.

The positive temperature anomalies between the equator and 5°N east of 110°W were associated with light southerly winds and reduced cloudiness allowing more solar warming. This warming, adjacent to upwelling in the Peru Current and its equatorial extension, provided the contrast in temperature which characterizes a strong equatorial ocean front.

South and west of Baja California large negative temperature departures from normal (Figure 10) have persisted through November, reflecting a strong California Current. Elsewhere between 10°N and 30°N sea surface temperature conditions have undergone little change over the past 2 months except for seasonal cooling.

Subsurface Temperature Structure in the Northeast Pacific Ocean

J.F.T. SAUR

Observations of subsurface temperature structure between San Francisco and Hawaii were taken by the SS Hawaiian Enterprise during the periods October 27-31, November 10-14 and November 16-20 (Figures 11, 12 and 13 respectively). Because the vessel returned directly to San Francisco rather than via Los Angeles there were no mid-November observations on the Honolulu-Los Angeles route.

The well defined mixed layer which had developed in mid-October continued to increase in depth. By mid-November the layer depths were generally between 60 m and 70 m throughout most of the section. The temperature gradient in the upper part of the thermocline also remained very sharp, as can be seen in the selected temperature profiles of Figures 11, 12 and 13. At many stations in the eastern half of the section, the temperature decrease in the upper thermocline was 2.5°C (4°F) or more in 10 m.

The waters of the California Current lay in the region from the coast westward to about 132°W, i.e., out about 500 nautical miles. Going westward across the boundary into the Transition Zone, surface salinities rose from values generally below 33.6‰ to between 34.0‰ and 34.9‰. The depths of the 10°-14°C (50°-57°F) isotherms increased by 80-100 m in about 90 miles.

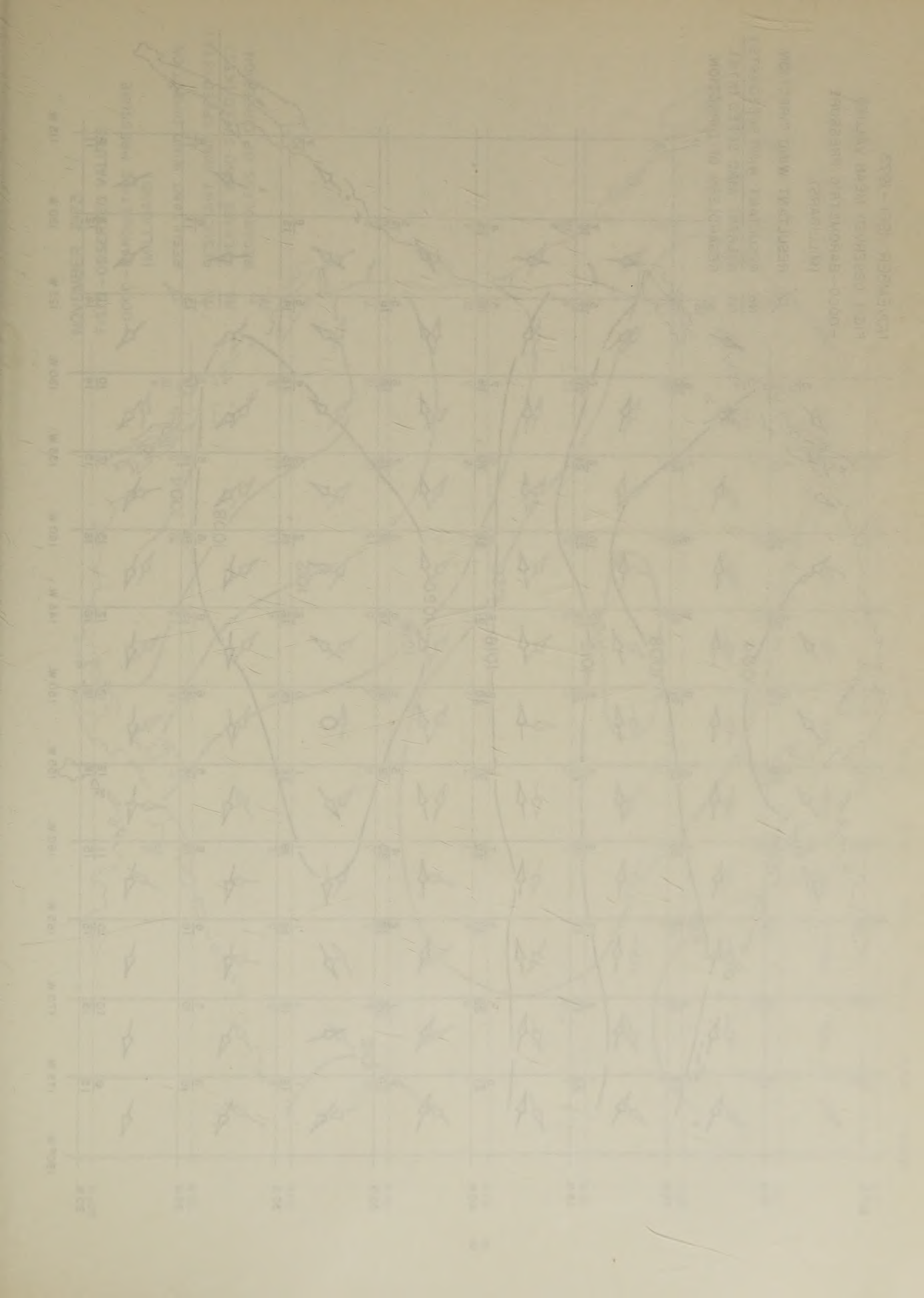
A further westward increase in salinity, to values above 35‰, and an increase in surface temperature of 1°C (2°F), in about 90 miles, occurred near mid-section at about 143°W. This marked the boundary between the Transition Zone and Eastern North Pacific Central water and was about 150 nautical miles closer to Hawaii than it had been during the preceding summer. The boundary is not well defined in the subsurface isotherms (10°-14°C), which had a gradual, though irregular, downward trend through both the Transition Zone and the Eastern North Pacific Central waters. This structure seems to occur typically in late fall and winter.

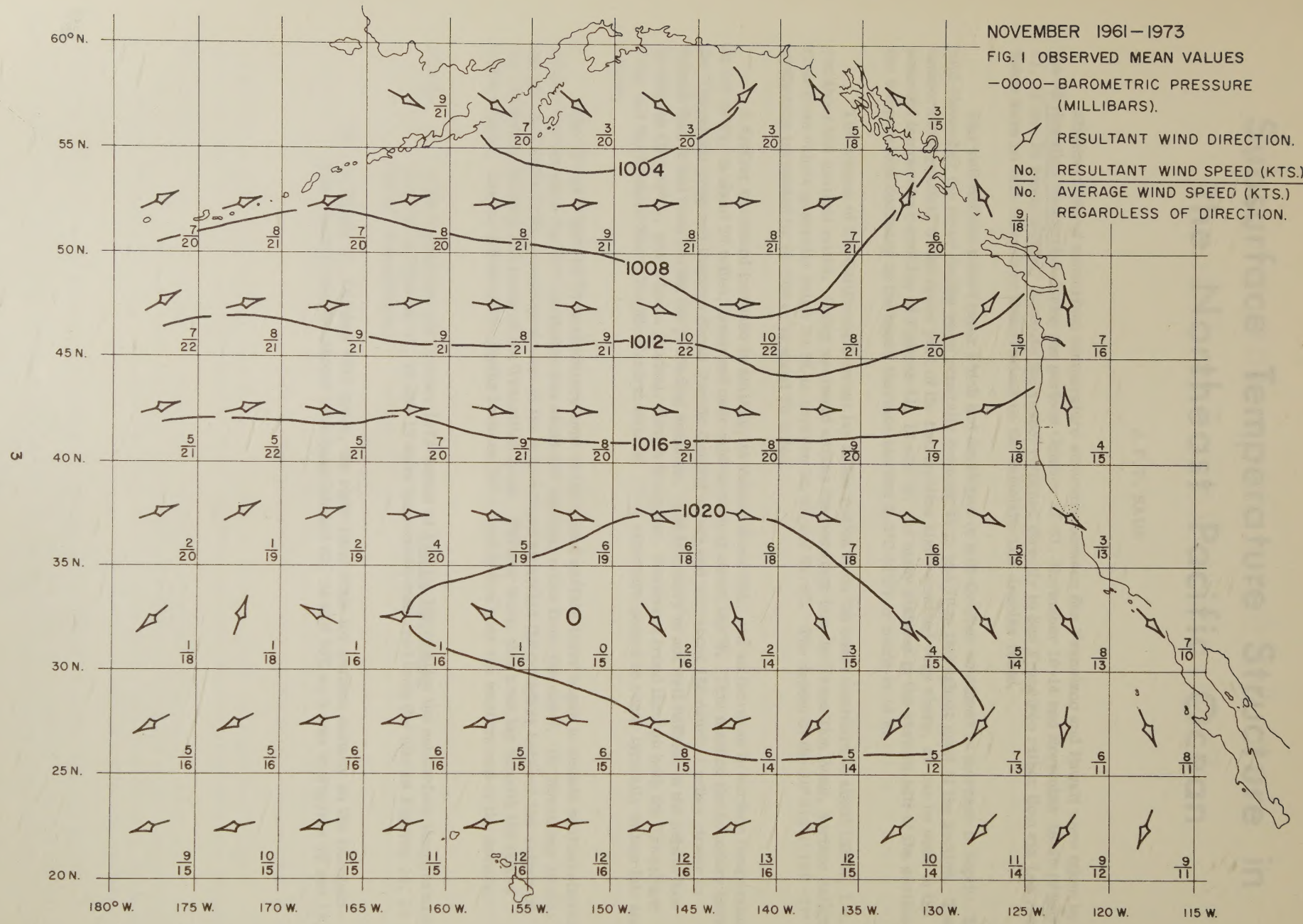
The 16°-19°C (60°-66°F) temperature zone in the mixed surface layer began to recede southwestward in late October when the 16°C isotherm was about 200 nautical miles from the coast. By November 16-20, the 16°-19°C (60°-66°F) temperature zone in the mixed layer straddled the boundary between the waters of the California Current and those of the Transition Zone. Further west, this zone lay beneath the mixed surface layer, sloping downward to depths between 160 m and 200 m near the western end of the section.

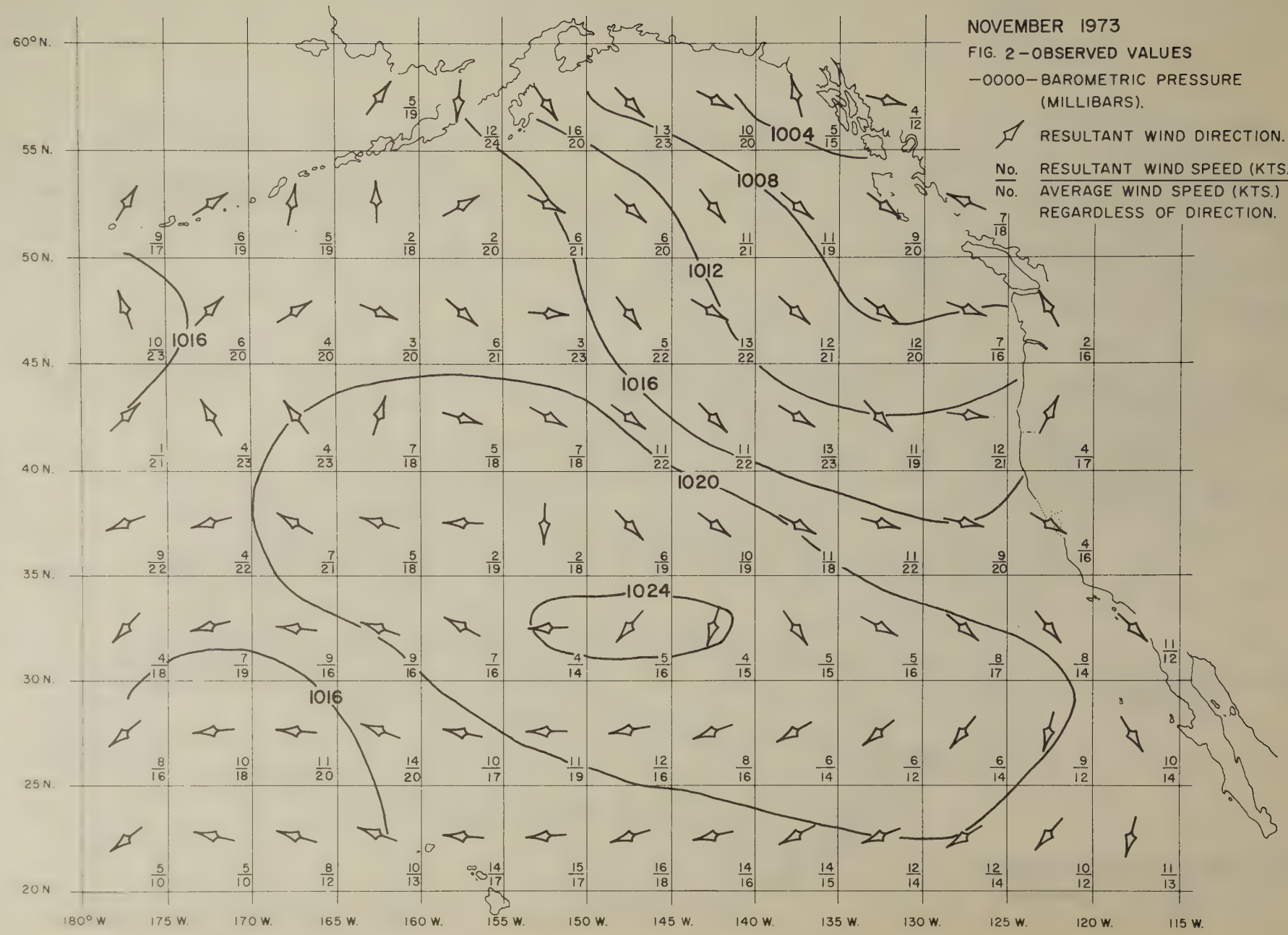
Errata:

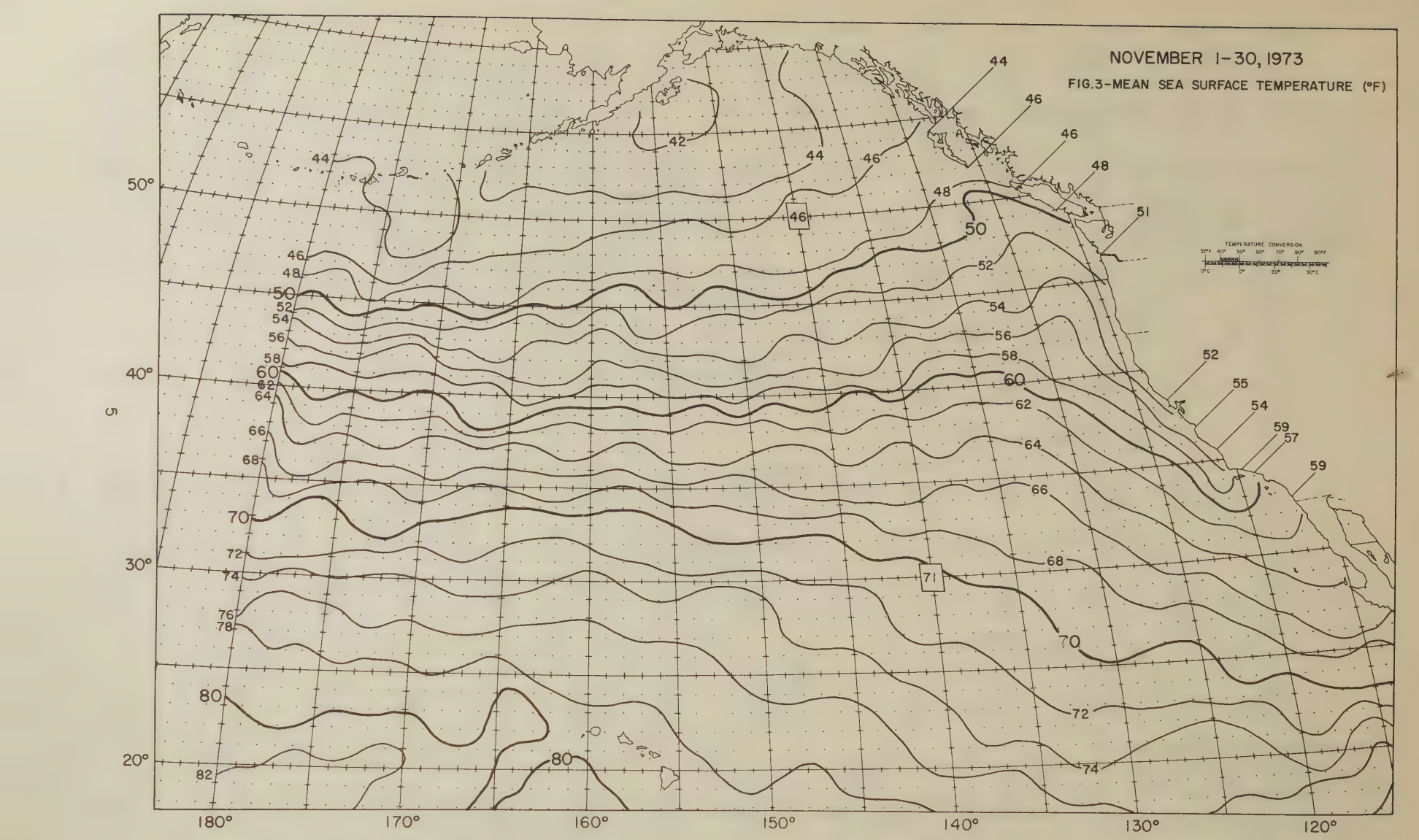
1) In the September and October 1973 issues of Fishing Information the subsurface temperature sections in Figures 11, 12 and 13 were incorrectly referred to in the text as Figures 10, 11 and 12, respectively.

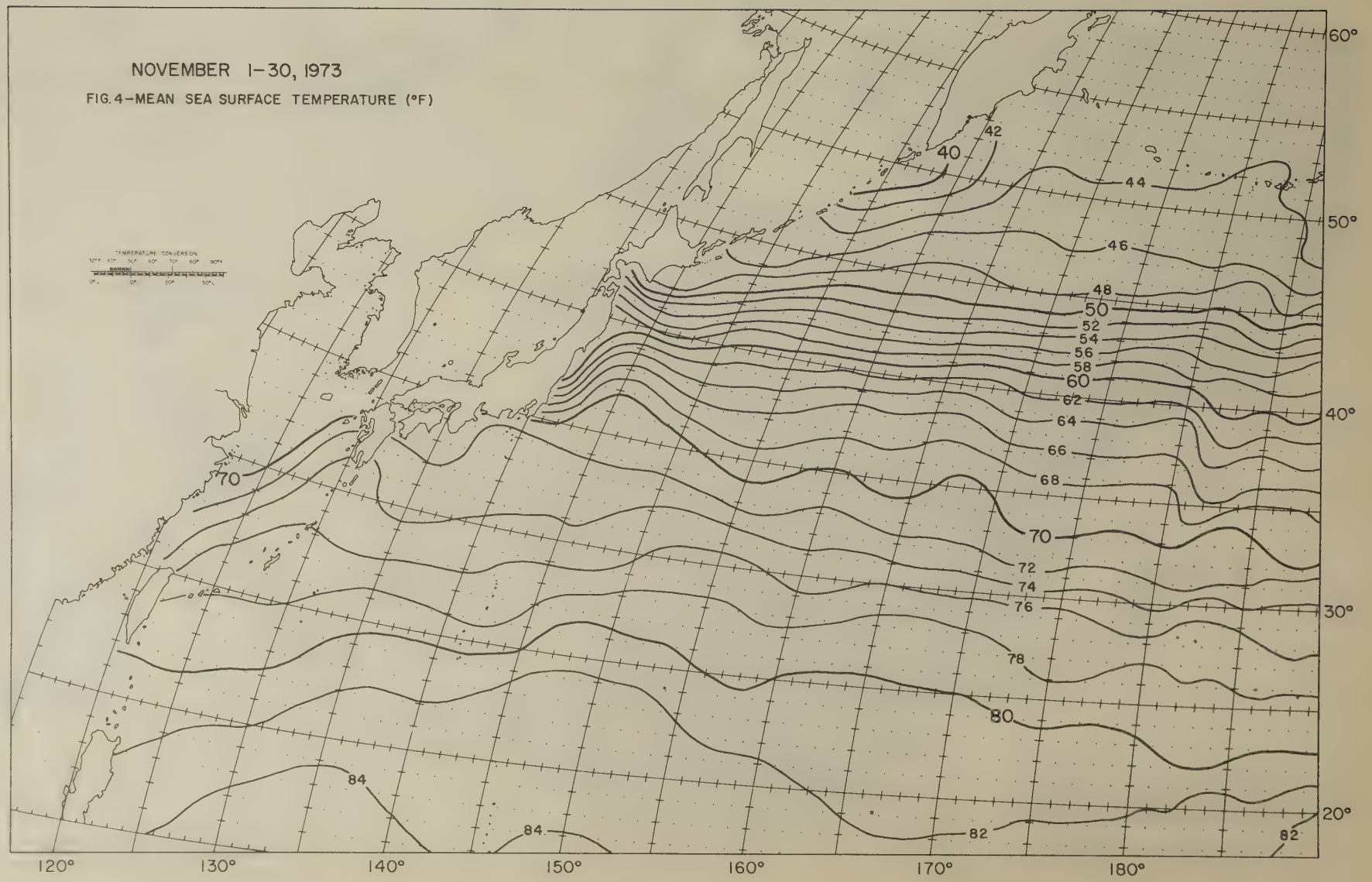
2) In Figure 11, October 1973 issue, the right-hand scale for surface salinity on the Honolulu-Los Angeles section should have been labeled 32, 34 and 36‰ as it was in Figures 12 and 13.

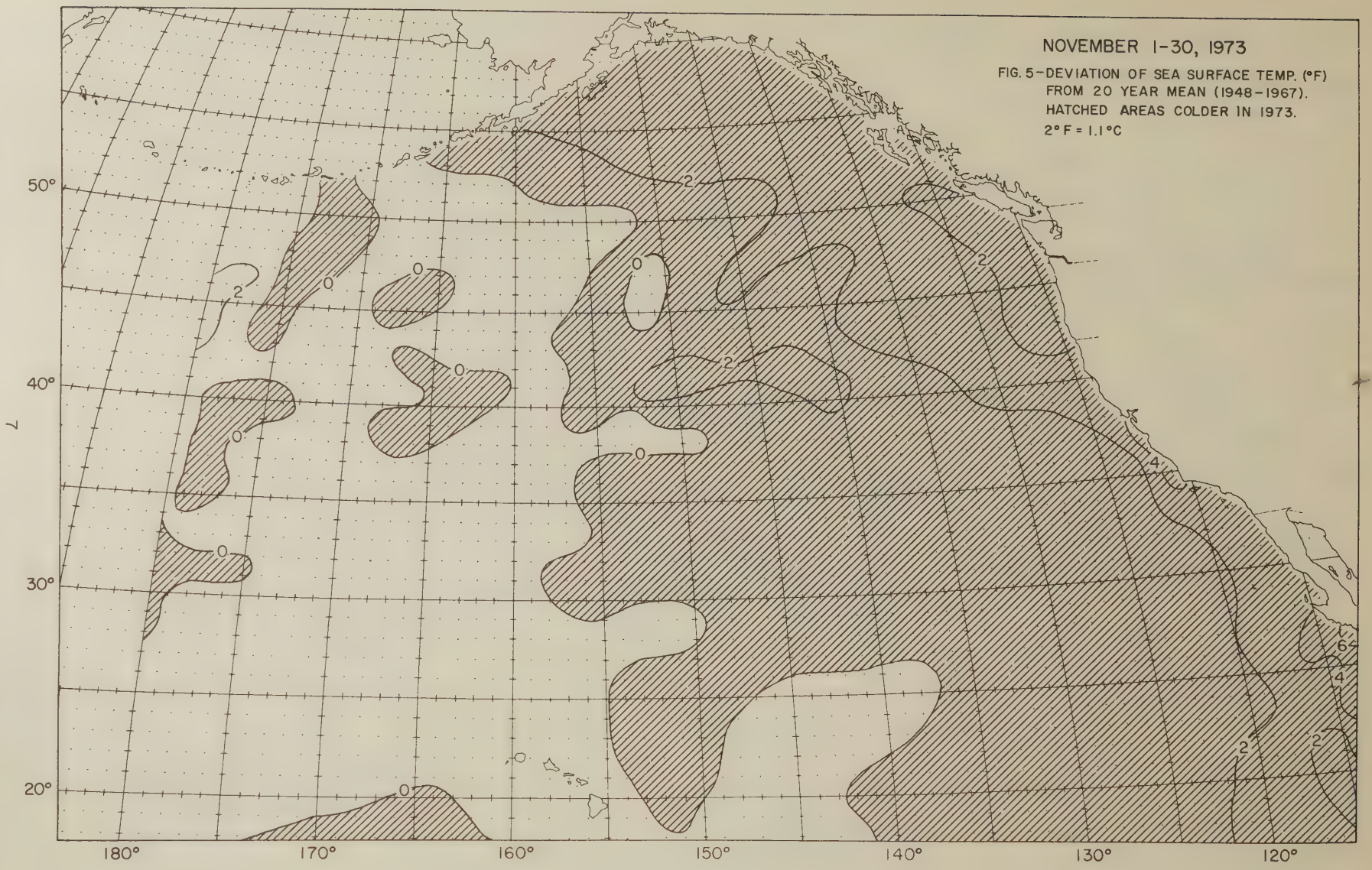


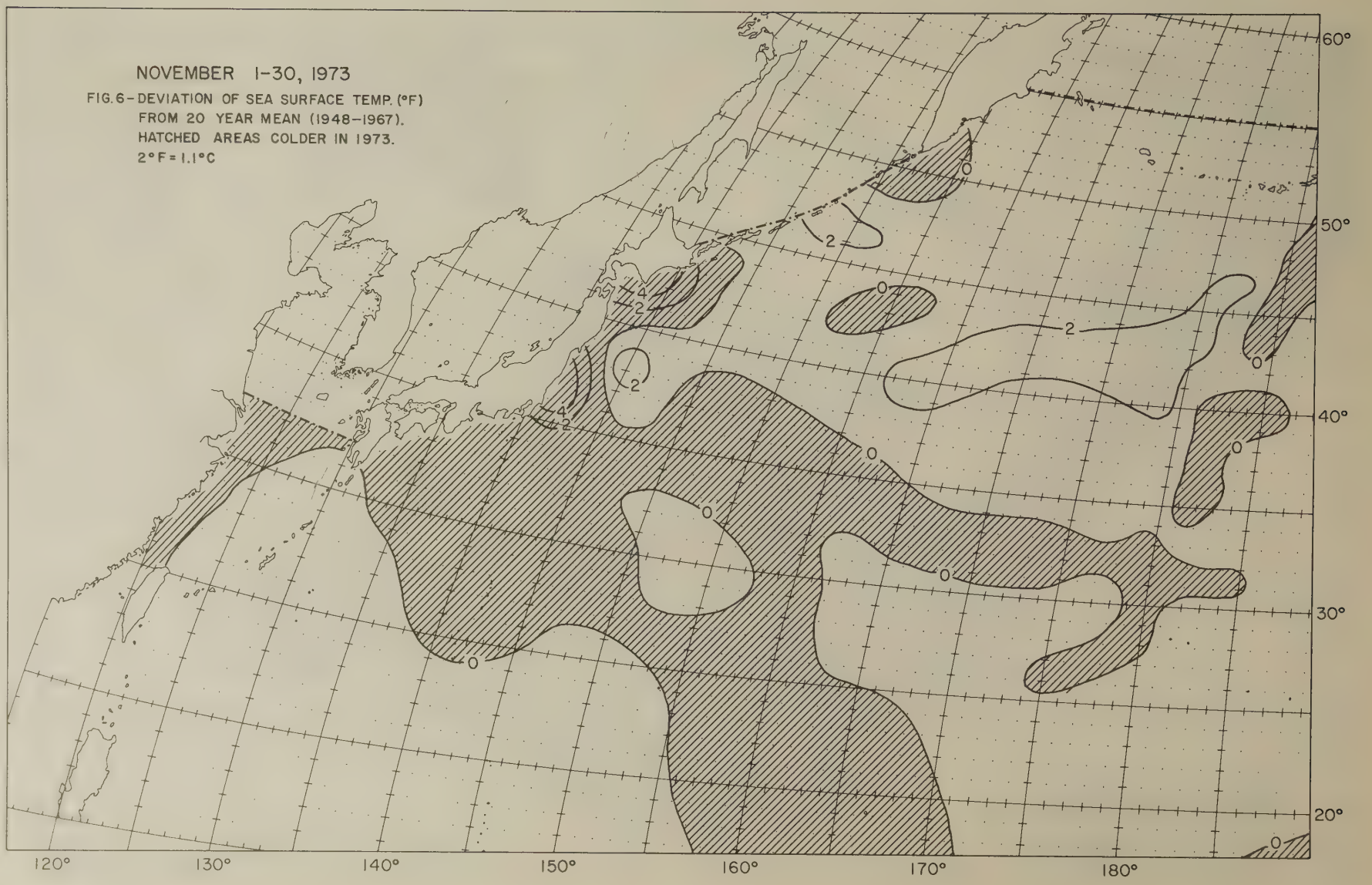

NOVEMBER 1961–1973
FIG. 1 OBSERVED MEAN VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1004
1008
1012
1016
1020
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

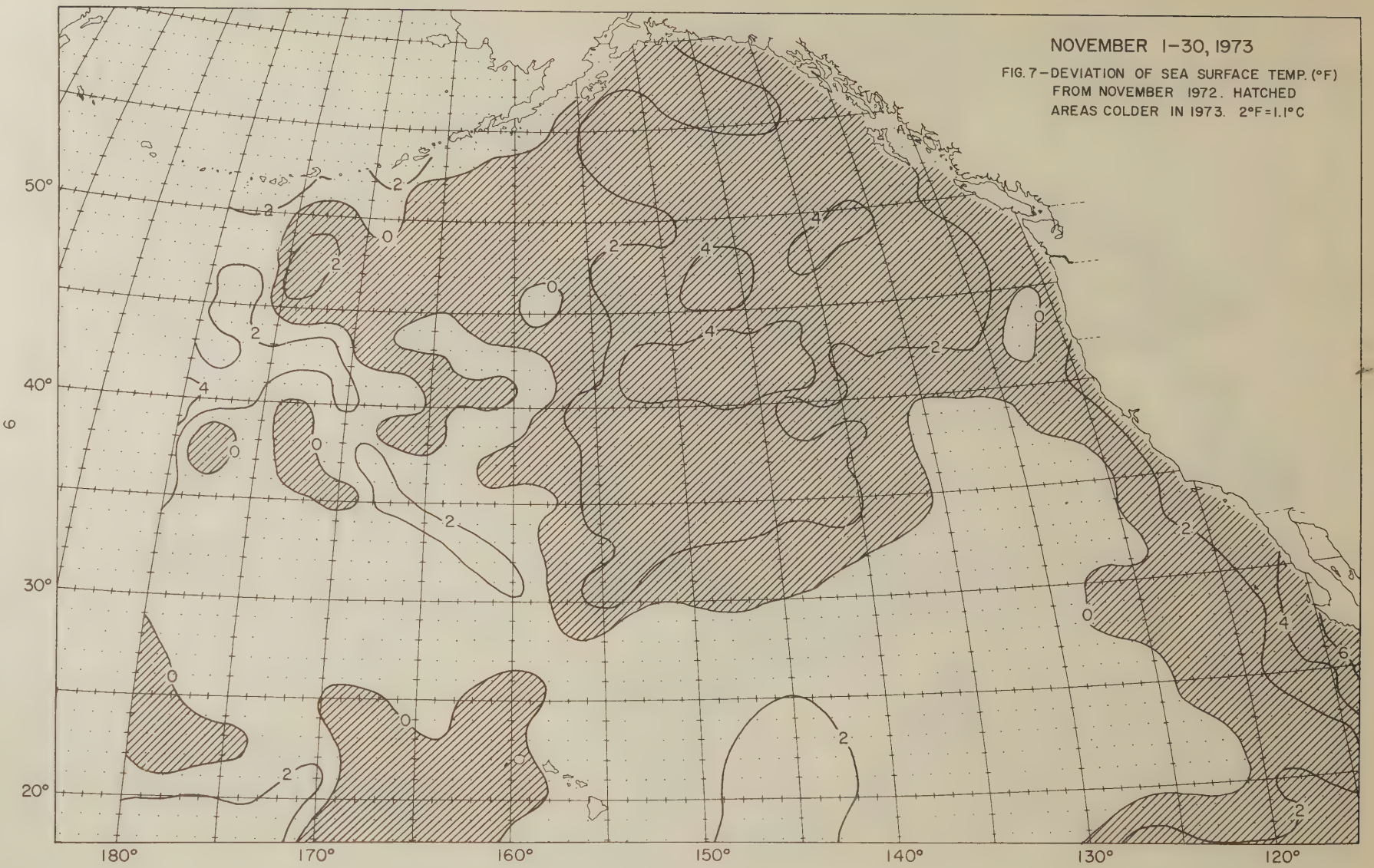

NOVEMBER 1973
FIG. 2 – OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1004
1008
1012
1016
1020
1024
1016
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N
180° W
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

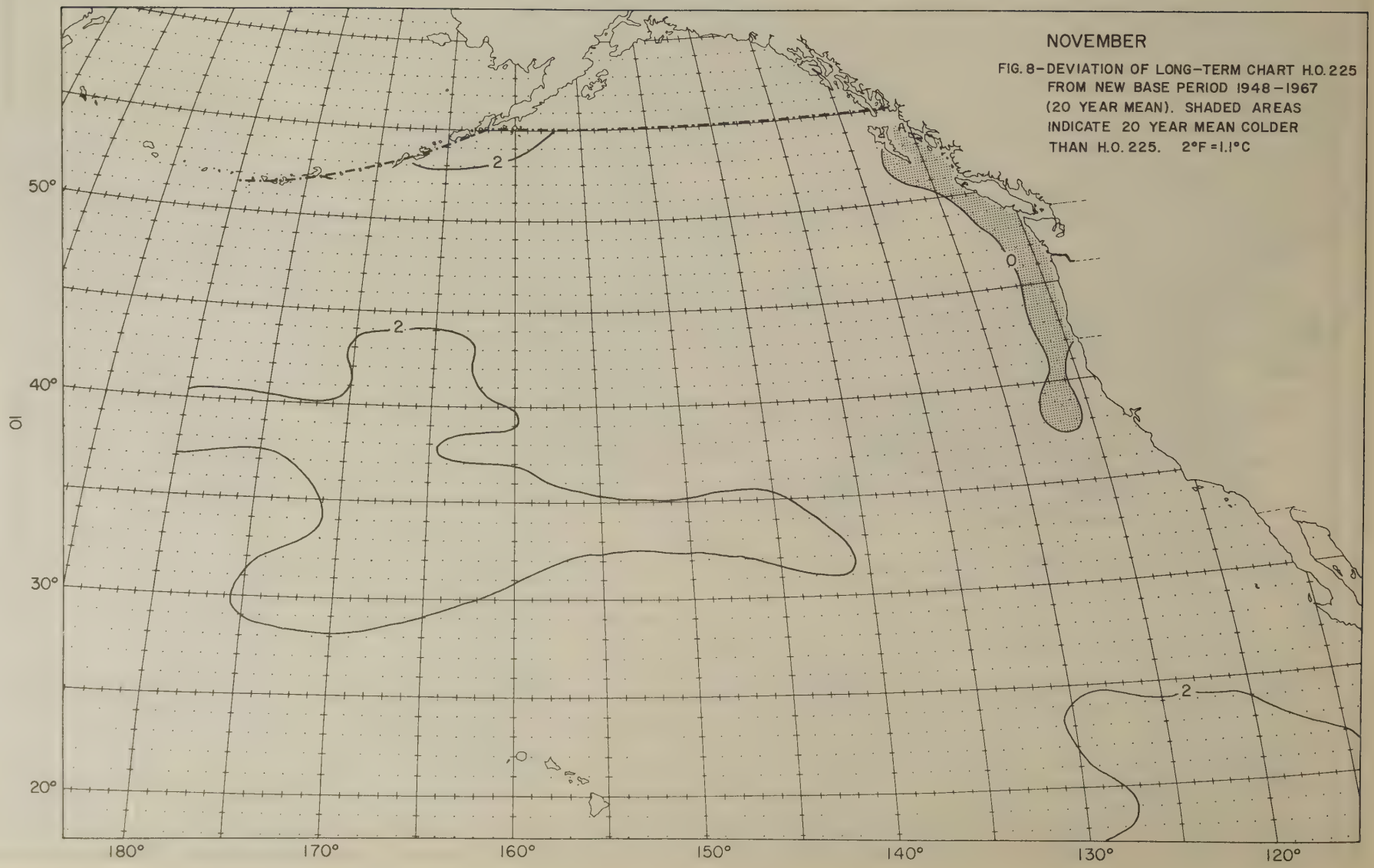

NOVEMBER 1-30, 1973
FIG.3-MEAN SEA SURFACE TEMPERATURE (°F)
TEMPERATURE CONVERSION
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
44
46
46
48
51
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
42
46
71
52
55
54
59
57
59

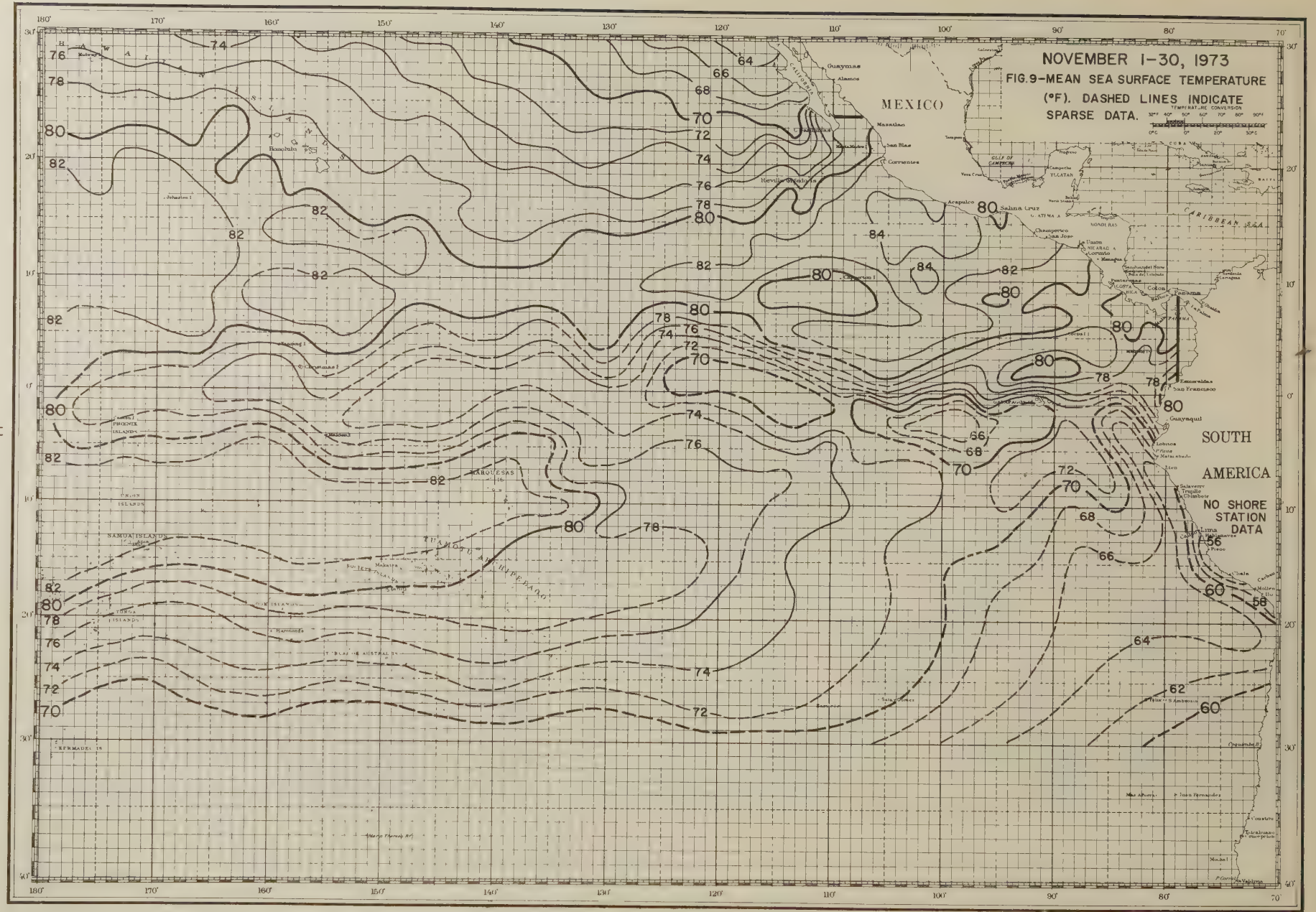

NOVEMBER 1–30, 1973
FIG. 4–MEAN SEA SURFACE TEMPERATURE (°F)
TEMPERATURE CONVERSION
42
40
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
84
84
82
82
70
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°

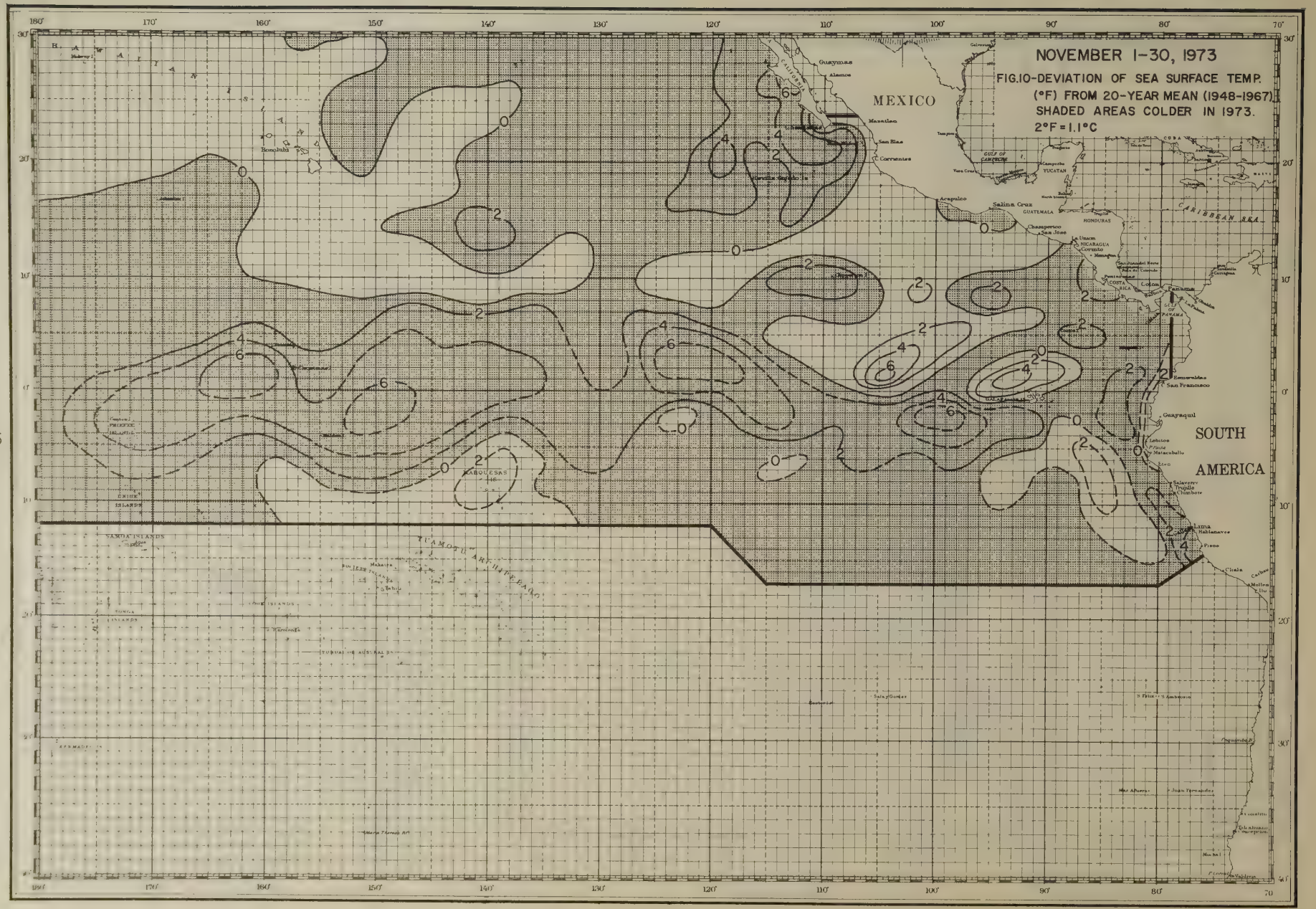

NOVEMBER 1-30, 1973
FIG. 5-DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1973.
2° F = 1.1°C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2
4
6


NOVEMBER 1-30, 1973
FIG. 6 - DEVIATION OF SEA SURFACE TEMP. (°F)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1973.
2°F = 1.1°C
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°
0
2
4


NOVEMBER 1–30, 1973
FIG. 7 – DEVIATION OF SEA SURFACE TEMP. (°F) FROM NOVEMBER 1972. HATCHED AREAS COLDER IN 1973. 2°F = 1.1°C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


NOVEMBER
FIG. 8-DEVIATION OF LONG-TERM CHART H.O. 225 FROM NEW BASE PERIOD 1948-1967 (20 YEAR MEAN). SHADED AREAS INDICATE 20 YEAR MEAN COLDER THAN H.O. 225. 2°F = 1.1°C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
2
2
0
2
0

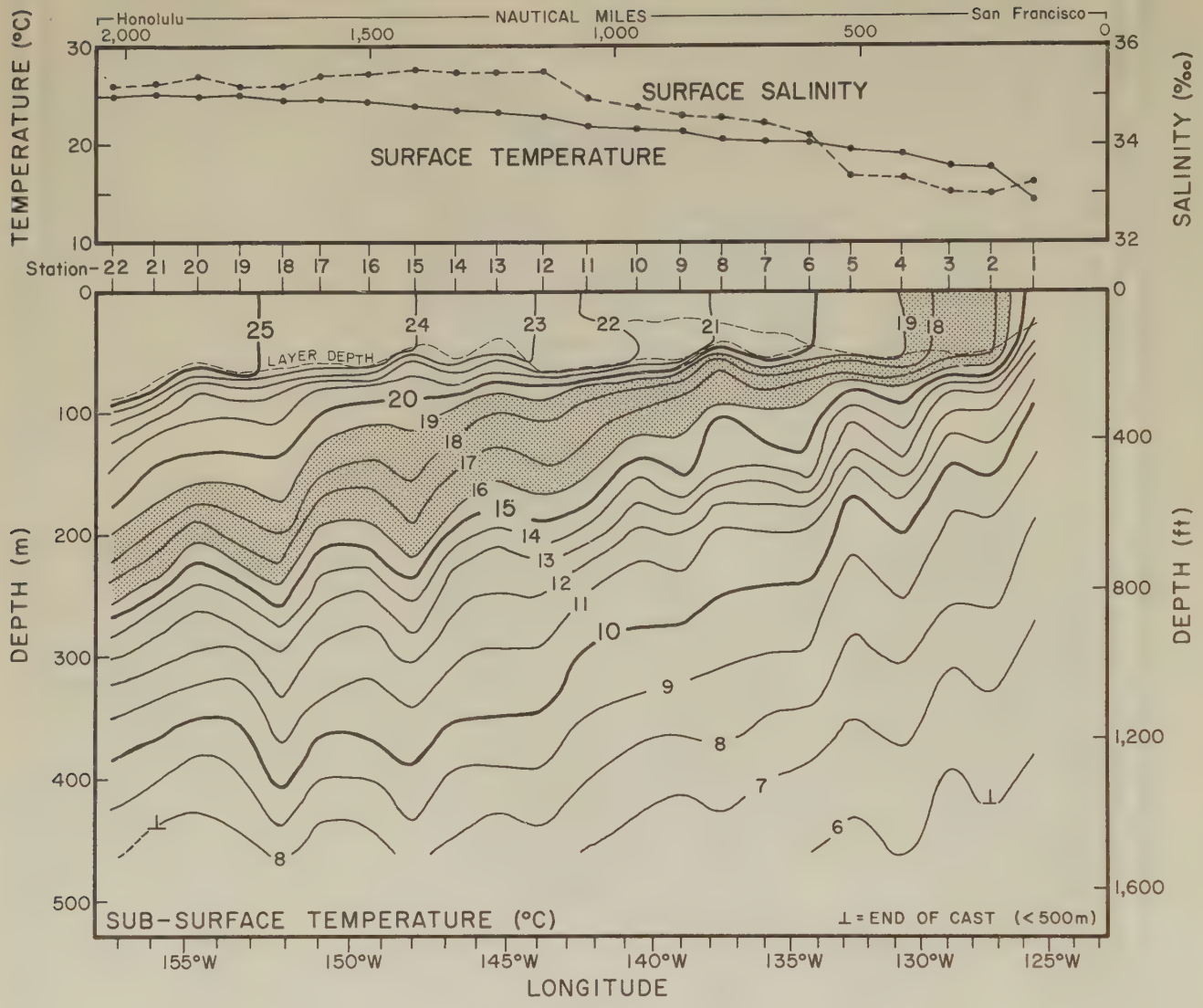

NOVEMBER 1-30, 1973
FIG.9-MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
NO SHORE STATION DATA
CARIBBEAN SEA
GULF OF CALIFORNIA
GULF OF CAMPECHE
HAWAIIAN ISLANDS
MARQUESAS
TUAMOTU ARCHIPELAGO
SAMOA ISLANDS
PHOENIX ISLANDS
LINE ISLANDS
Honolulu
Acapulco
Salina Cruz
Guaymas
Manzanillo
San Blas
Corrientes
Panama
Guayaquil
Callao
Lima
Chimbote
Salaverry
Trujillo
Paita
Tumbes
Colon
Buenaventura
Esmeraldas
San Francisco
Cocos I.
Clipperton I.
Galapagos I.
Easter I.
Juan Fernandez
Mas Afuera
Valparaiso
Concepcion
Talcahuano
Mocha I.
Arica
Iquique
Antofagasta
Caldera
Coquimbo
Tocopilla
Mollendo
Ilo
Pisco
Chimbote
Nicaragua
Honduras
Costa Rica
Panama
Guatemala
Salvador
Nicaragua
Honduras
Chesapeake
San Jose
Corinto
Manzanillo
Revilla Gigedo Is.
Socorro I.
Johnston I.
Palmyra I.
Christmas I.
Fanning I.
Washington I.
Jarvis I.
Howland I.
Baker I.
Hull I.
Enderbury I.
Canton I.
Phoenix Is.
Samoa Is.
Tokelau Is.
Tuamotu Archipelago
Marquesas Is.
Society Is.
Austral Is.
Cook Is.
Tonga Is.
Fiji Is.
Bermuda
Cuba
Yucatan
Campeche
Veracruz
Tampico
Galveston
Key West
Bahamas
Haiti
Jamaica
Puerto Rico
Virgin Is.
Leeward Is.
Windward Is.
Barbados
Trinidad
Curacao
Aruba
Maracaibo
Caracas
Barranquilla
Cartagena
Colombia
Venezuela
Ecuador
Peru
Chile
Argentina
Brazil
Guyana
Suriname
French Guiana
Amazon R.
Orinoco R.
Magdalena R.
Panama Canal
Gulf of Panama
Gulf of Guayaquil
Gulf of Tehuantepec
Gulf of Fonseca
Gulf of Nicoya
Gulf of Dulce
Gulf of Papagayo
Gulf of Montijo
Gulf of Chiriqui
Gulf of Darien
Gulf of Uraba
Gulf of Venezuela
Gulf of Paria
Gulf of Maracaibo
Gulf of Cariaco
Gulf of Triste
Gulf of Guacanayabo
Gulf of Gonave
Gulf of Mona
Gulf of Samana
Gulf of Mexico
Gulf of Campeche
Gulf of California

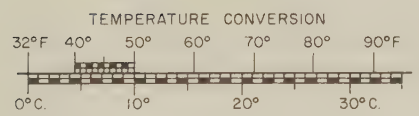

NOVEMBER 1-30, 1973
FIG.10-DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20-YEAR MEAN (1948-1967). SHADED AREAS COLDER IN 1973.
2°F = 1.1°C
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CUBA
HAITI
Guaymas
Mazatlan
San Blas
Corrientes
Acapulco
Salina Cruz
Chiapa
San Jose
Corinto
Managua
Puntarenas
Limon
Panama
Galapagos Is.
Esmeraldas
San Francisco
Guayaquil
Salaverry
Trujillo
Chimbote
Lima
Callao
Pisco
Chala
Mollendo
Arica
Iquique
Antofagasta
Valparaiso
Juan Fernandez
Mar Afuera
Easter Is.
Sala y Gomez
Marquesas Is.
Tuamotu Archipelago
Society Is.
Tahiti
Samoa Islands
Tonga Islands
Cook Islands
Tubuai Is.
Austral Is.
Bonaparte Is.
Revilla Gigedo Is.
Galapagos Is.
Clipperton Island
Phoenix Islands
Line Islands
Ellice Islands
Gulf of California
Gulf of Tehuantepec
Gulf of Panama
Gulf of Guayaquil
Gulf of Fonseca
Gulf of Campeche
Yucatan
Tampico
Veracruz
Progreso
Belize
Roatan
Cayman Is.
Jamaica
Haiti
Cuba
Galveston
Mazatlan
Manzanillo
Acapulco
Salina Cruz
Chiapa
Puntarenas
Limon
Panama
Esmeraldas
Guayaquil
Salaverry
Callao
Pisco
Chala
Arica
Iquique
Antofagasta
Valparaiso
Juan Fernandez
Easter Is.
Sala y Gomez
Marquesas Is.
Tuamotu Archipelago
Society Is.
Tahiti
Samoa Islands
Tonga Islands
Cook Islands
Tubuai Is.
Austral Is.
Bonaparte Is.
Revilla Gigedo Is.
Galapagos Is.
Clipperton Island
Phoenix Islands
Line Islands
Ellice Islands
Gulf of California
Gulf of Tehuantepec
Gulf of Panama
Gulf of Guayaquil
Gulf of Fonseca
Gulf of Campeche
Yucatan
Tampico
Veracruz
Progreso
Belize
Roatan
Cayman Is.
Jamaica
Haiti
Cuba
Galveston
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
10°
20°
30°
40°

OCTOBER 27–31, 1973

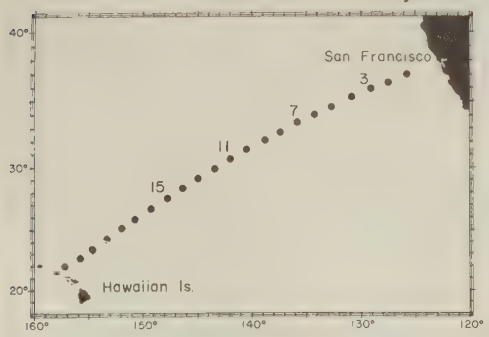
SS HAWAIIAN ENTERPRISE, Voyage 76

FIGURE 11

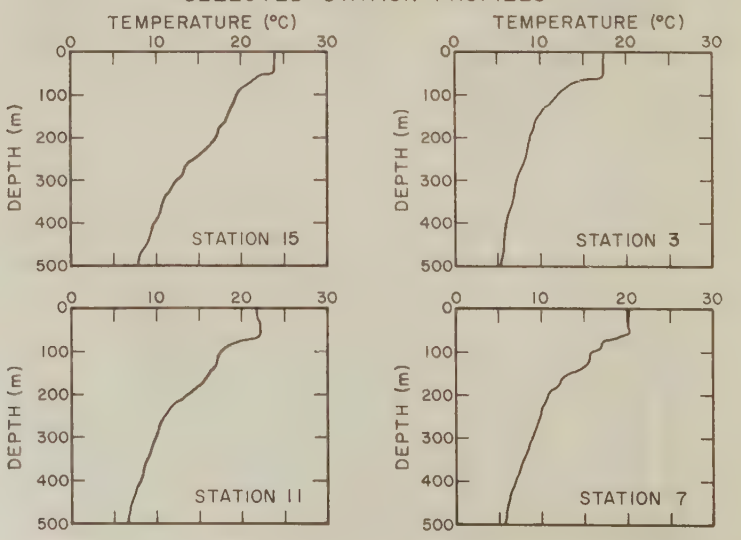




STATION POSITIONS Voy. 76

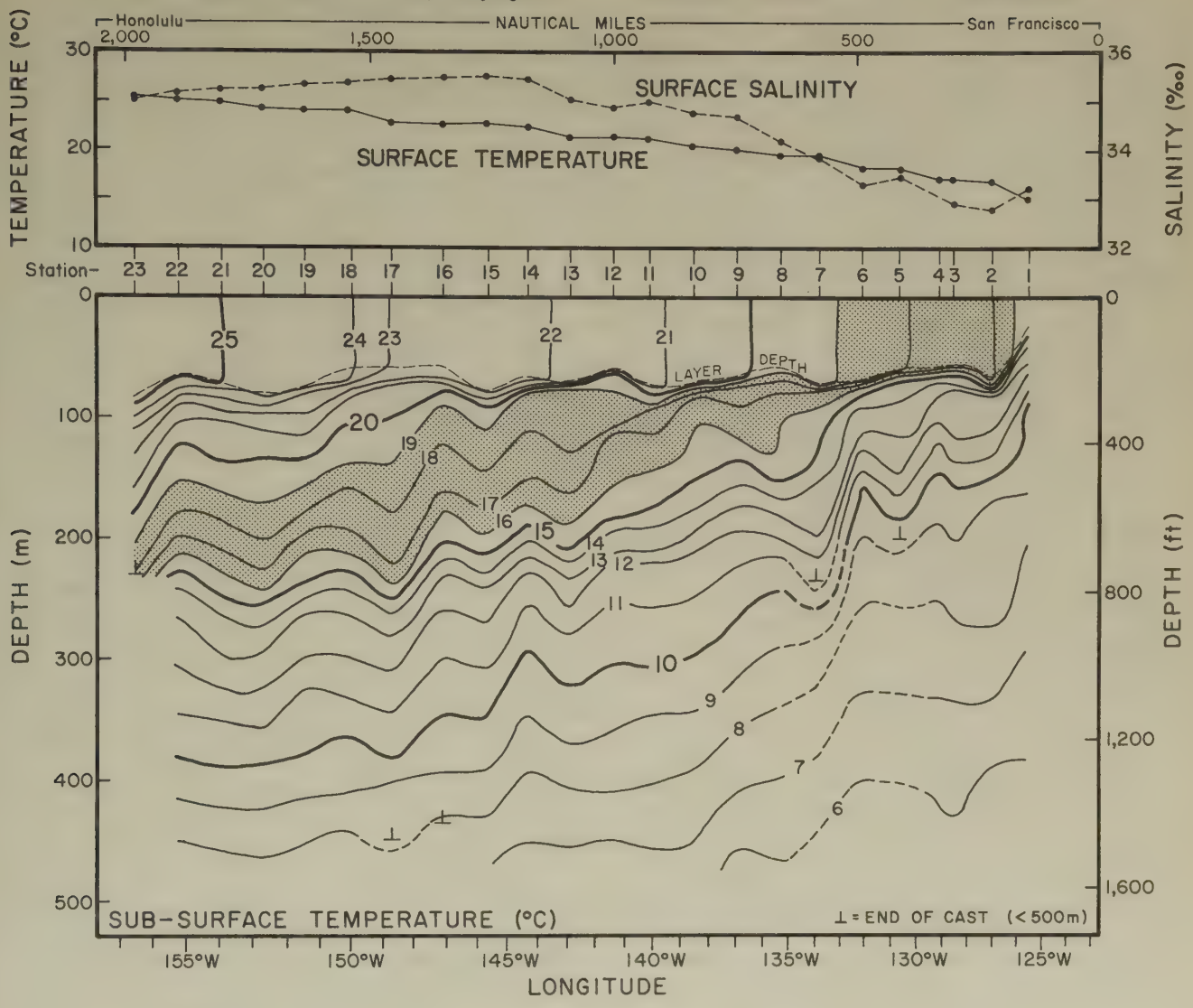


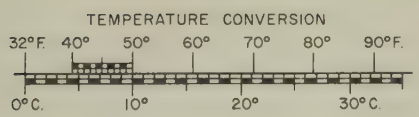
SELECTED STATION PROFILES



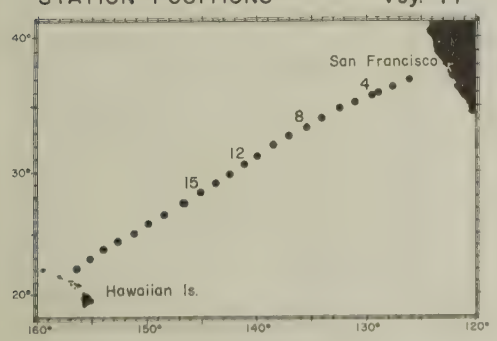
NOVEMBER 10-14, 1973
SS HAWAIIAN ENTERPRISE, Voyage 77

FIGURE 12

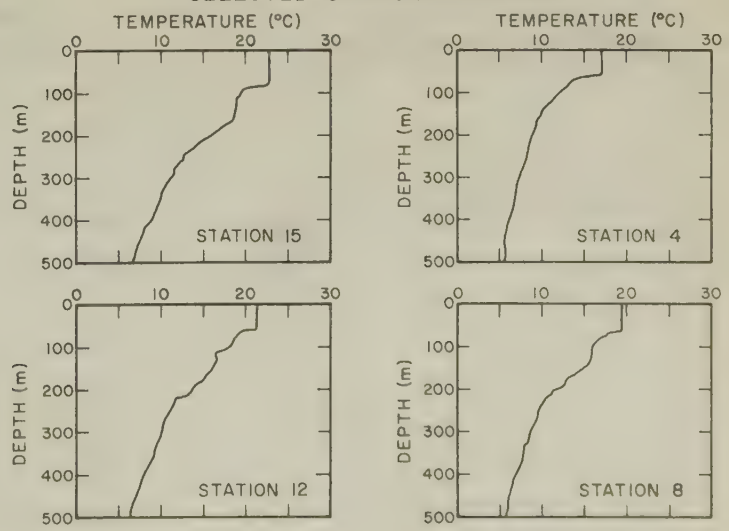




STATION POSITIONS Voy. 77



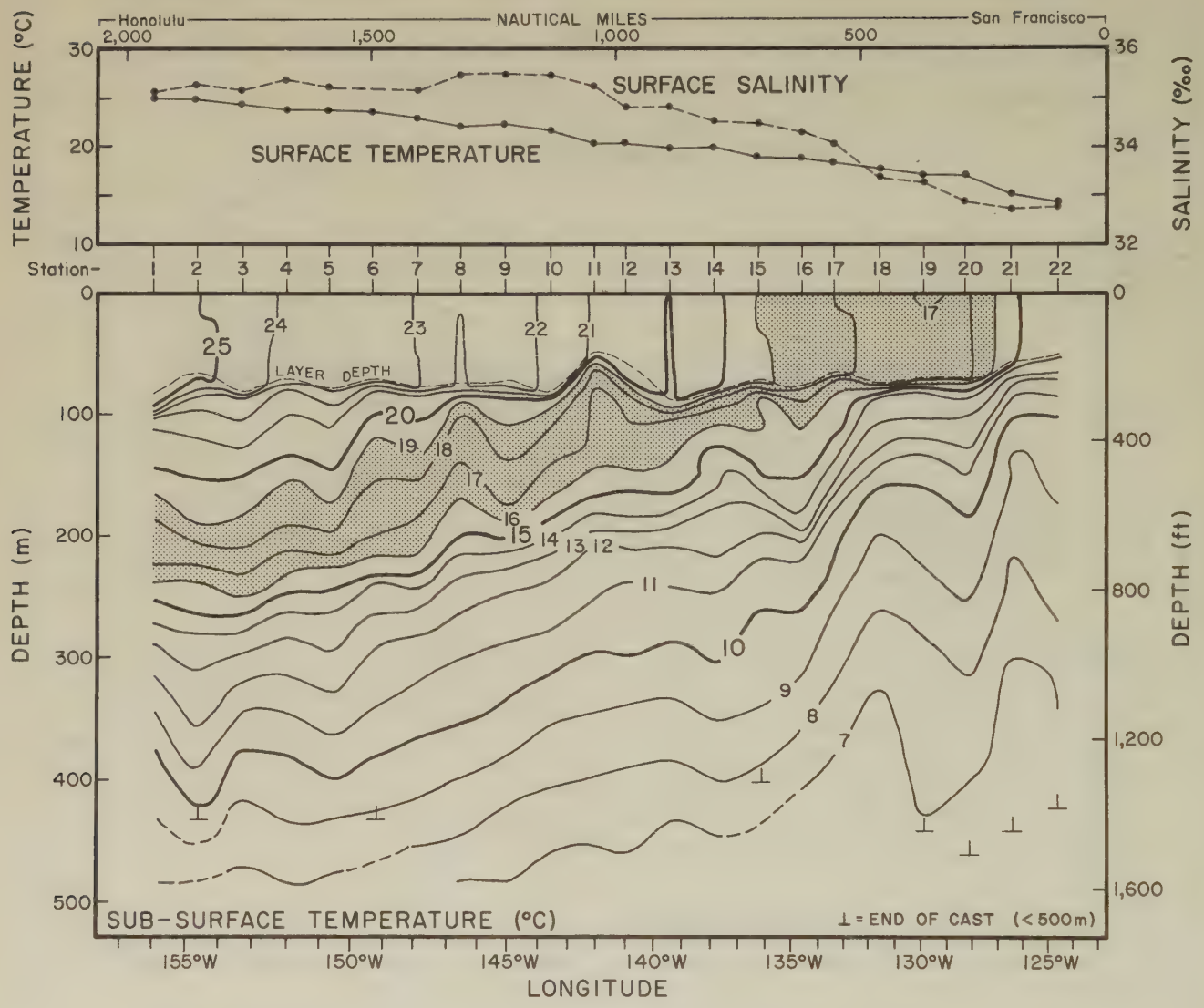
SELECTED STATION PROFILES

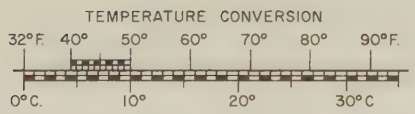


NOVEMBER 16–20, 1973

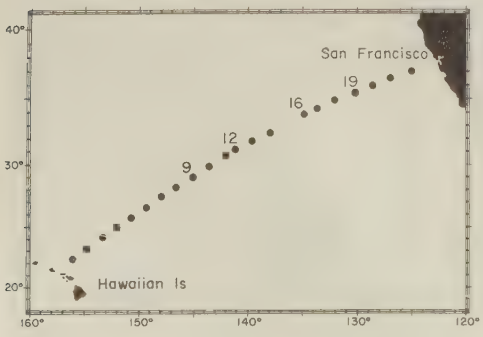
FIGURE 13

SS HAWAIIAN ENTERPRISE, Voyage 77

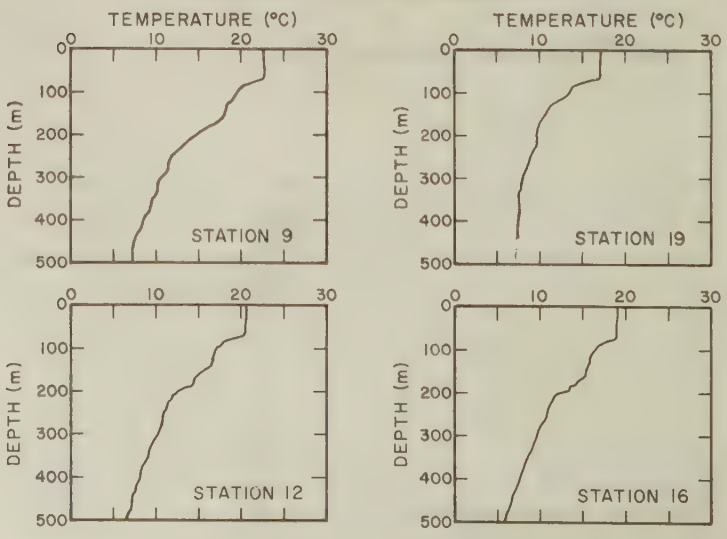




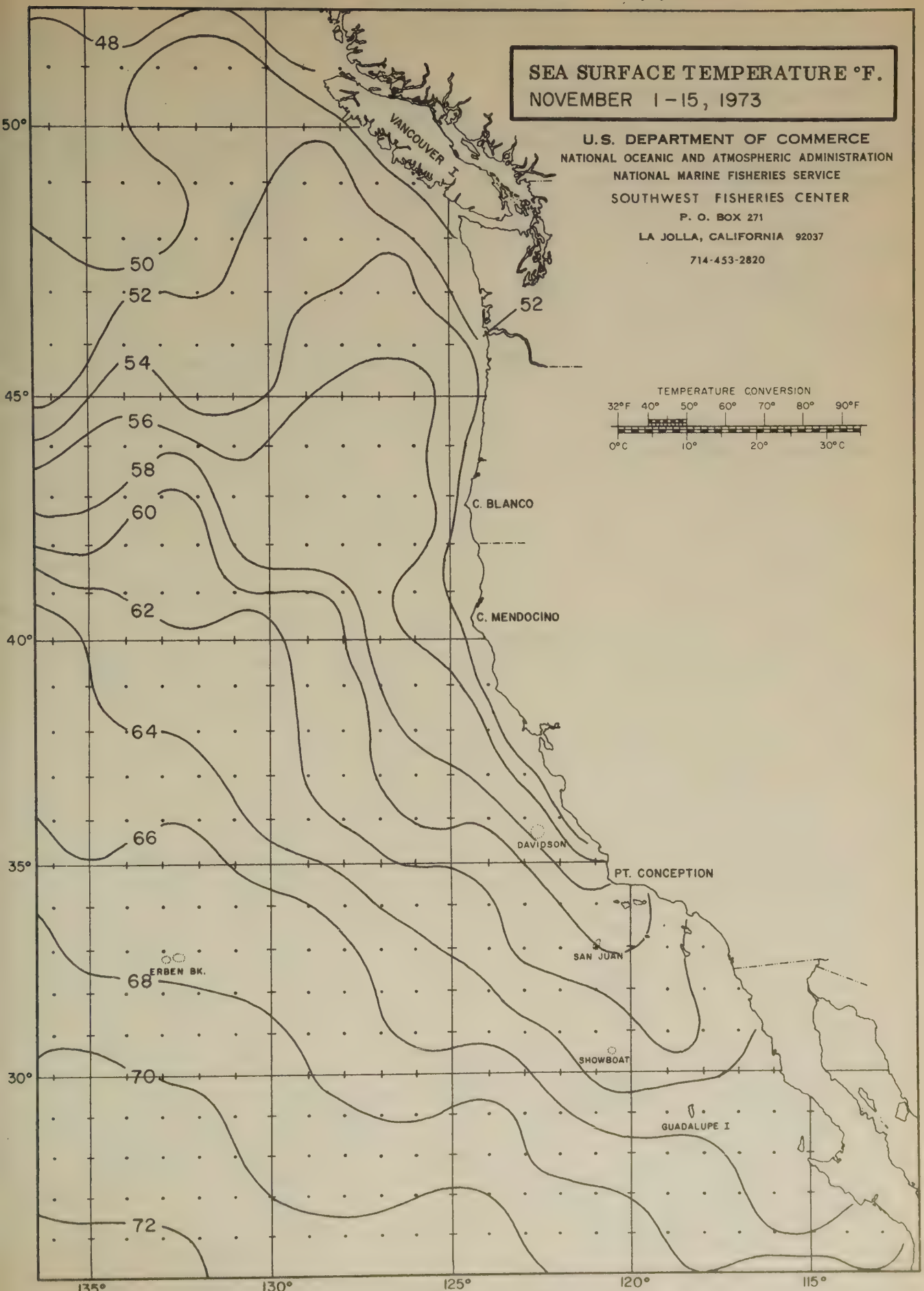
STATION POSITIONS Voy. 77



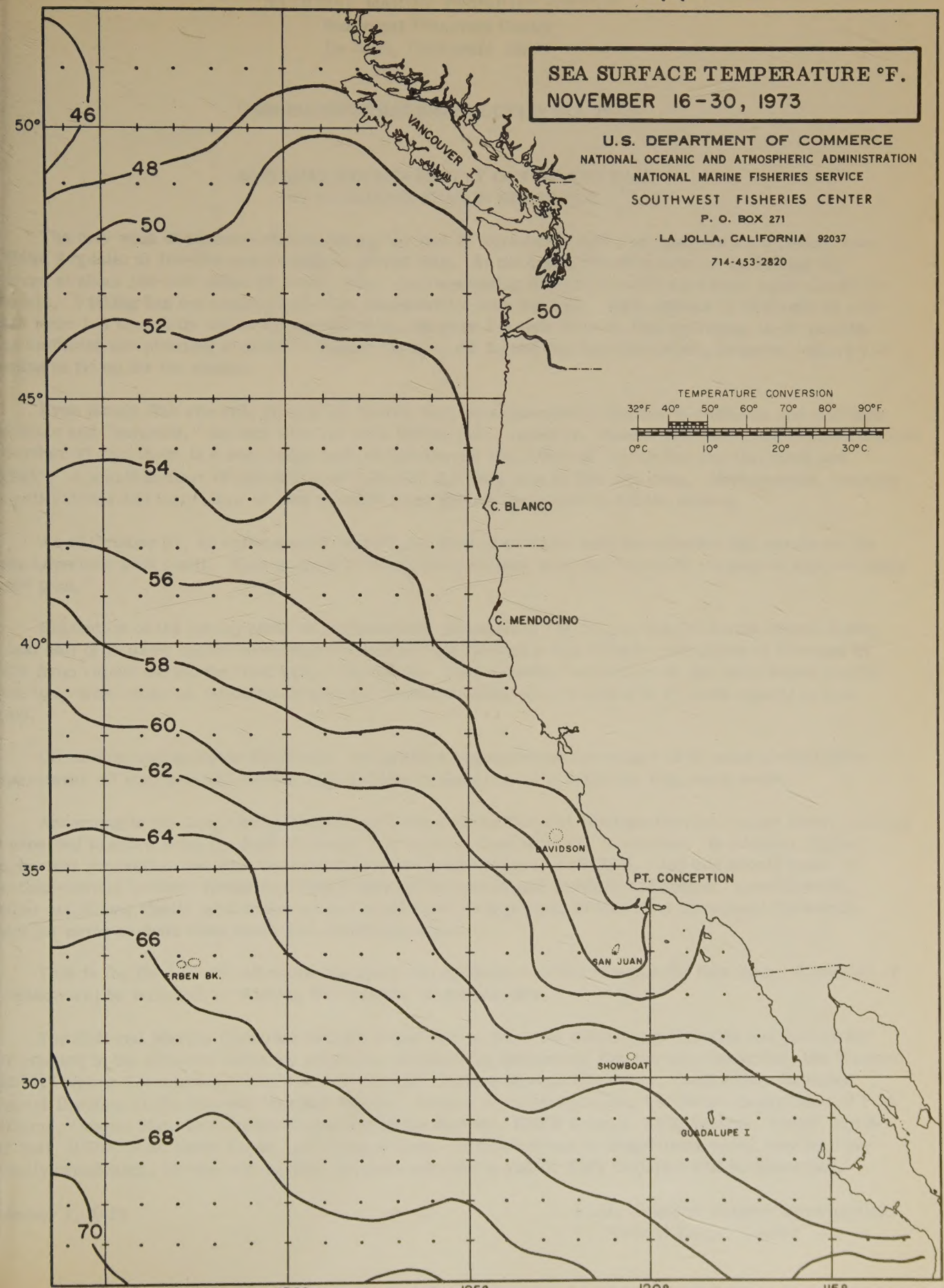
SELECTED STATION PROFILES



FISHING INFORMATION – supplement



FISHING INFORMATION – supplement



UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92037

FISHING INFORMATION BULLETIN NO. 73-10

BAITBOAT FISHING SPOTTY OFF MORRO BAY AS ALBACORE SEASON NEARS END

The only area of albacore fishing during the last 15 days of October was from the 1908 fathom spot Point Arguello to 100-200 miles offshore Morro Bay. At the end of October most of the fishing was ntered at about 100-150 miles off Morro Bay. Catches during the last 2 weeks have been made mostly by tboats. Fishing has been spotty and often hampered by poor weather. High catches by baitboats at mid-nth were 1-4 tons daily and at the end of the month were 1-2 tons daily on fish averaging 18-20 pounds. ne baitboats are planning to continue fishing the area off Morro Bay into November; however, others are nning to tie up for the season.

Even though fish are still present off Morro Bay, as evidenced by catches by baitboats and sightings schools and "jumpers," the fish have not been hitting jigs. However, there was a confirmed report received October 31 that there is a very large body of fish beyond 150 miles off Morro Bay and that many are gfish". A small number of jigboats have indicated that they plan to fish this area. Nevertheless, because small catches and many days of poor weather most jigboats have tied up for the season.

As of October 31, an estimated 19,000-20,000 tons of albacore have been landed this season on the rth American west coast. This is about 2,000-3,000 tons less than the 1963-1972 average of approximately ,000 tons.

Relaxation of the strong north to northwesterly winds along the Oregon and California coasts during last half of October caused upwelling to decrease and allowed sea surface temperatures to increase by 4°F from values during the first half of the month. Consequently, temperatures that were below normal the long-term mean off southern Oregon and northern California are now 1°-2°F above normal in this gion.

Off central and northern California, sea surface temperatures are still 1°-2°F below normal while mperatures off northern and central Baja California remain 2°-6°F below the long-term mean.

According to the Long-Range Prediction Groups of the National Weather Service, major storm systems e expected to move from the Gulf of Alaska into western Canada during November. In addition, higher-n-normal pressures are expected over the northwestern section of the U.S., and this should result in s-than-normal weather fronts reaching southward to central and southern California. Consequently, ather conditions should remain favorable for albacore fishing south of Monterey throughout the month, cept for some periods when Santa Ana conditions occur.

This is the final 15-day albacore summary and extended weather forecast for this year. A resume of season will be included in "Fishing Information" at a later date.

The National Marine Fisheries Service would like to thank the following individuals and groups for ir support in the albacore advisory program: cooperating fishermen, fish buyers, canneries, the Western hboat Owners Association, Navy Fleet Numerical Weather Central (Monterey, California), Extended recast Division of the National Weather Service, Oregon Fish Commission, California Department of Fish Game, Oregon State University Marine Extension Service, KRED Eureka, KFX Astoria, Pacific North-st Bell, WWD, NMC Point Reyes, and many others. Any comments or suggestions which may improve daily broadcasts, 15-day sea-surface temperature charts and/or Fish Bulletins will be welcomed.

vember 1, 1973

Staff, Albacore Fishery Investigations
R. Michael Laurs, Leader